

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (canceled).

Claim 2 (currently amended): The control system according to claim 30, ~~characterized in that~~ wherein the operating system ~~(34)~~ is a real-time operating system.

Claim 3 (currently amended): The control system according to claim 30, ~~characterized in that~~ wherein a running-time system ~~(35)~~ (software processor or virtual machine) is installed on the operating system ~~(34)~~, said running-time system converting program instructions of the controlling and regulating software ~~(36)~~ into a representation which can be processed by the one or several microprocessors ~~(12)~~ of the control system, and which assumes the control over the processing.

Claim 4 (currently amended): The control system according to claim 3, ~~characterized in that~~ wherein the running-time system

~~(36)~~ is a soft-PLC or soft-SPS and emulates a stored-program control.

Claim 5 (currently amended): The control system according to claim 30, ~~characterized in that~~ wherein the operating system ~~(34)~~ without the additional running-time system ~~(35)~~ supports the use of a programming language for the controlling and regulating software.

Claim 6 (currently amended): The control system according to claim 3, ~~characterized in that~~ wherein the controlling and regulating software is programmed in a programming language for stored-program control systems.

Claims 7-8 (canceled).

Claim 9 (currently amended): The control system according to claim 8, ~~characterized in that~~ 32, wherein the industrial PC or industrial microcomputer and the associated data memory ~~(13)~~ are arranged in a compact, screened housing ~~(5)~~ that can be installed in the control panel ~~(6)~~ of an aggregate for generating compressed air or vacuums, and whose front side has the control surface ~~(7)~~ with plain text display, whereas the back wall or the

top wall and/or the bottom wall and/or the side wall of the housing (5) are provided with the digital and/or analog inputs and outputs and the data interfaces.

Claim 10 (canceled).

Claim 11 (currently amended): The control system according to claim 30, ~~characterized in that~~ wherein the data of each called-up data profile (40) including the data determining the occupancy of the inputs and outputs ~~(19, 20, 23, 24)~~ are variable by means of the control surface (7) and/or via a data interface ~~(14, 15, 16)~~.

Claim 12 (currently amended): The control system according to claim 11, ~~characterized in that~~ wherein several different, password-protected, hierarchically graded levels are set up for changing the data profiles (40) or other adjustments.

Claim 13 (currently amended): The control system according to claim 7, ~~characterized in that~~ 31, wherein for the purposes of trouble analysis and analysis of the operating performance, the history memory retains a record of certain events or conditions that occurred in the past over a large span of time, such a

record containing the date, the clock time, the status and explanations of such events or conditions.

Claim 14 (currently amended): The control system according to claim 13, ~~characterized in that~~ wherein the content of the history memory can be called up in plain text on the display ~~(8)~~ and/or via the communicative data interfaces ~~(14, 15, 16)~~.

Claim 15 (currently amended): The control system according to claim 13, ~~characterized by~~ wherein an evaluation algorithm for the history memory, with the help of which the performance of the control system can be optimized for the future by means of the stored events and/or conditions from the past.

Claim 16 (currently amended): The control system according to claim 8, ~~characterized in that~~ 32, wherein the software of the industrial PC or industrial microcomputer is freely programmable locally via one of the interfaces ~~(14, 15, 16)~~ or via remote data transmission, and is thus adaptable in any desired way.

Claim 17 (currently amended): The control system according to claim 16, ~~characterized in that~~ wherein the software of the industrial PC or industrial microcomputer contains a stored-

program timer function capable of controlling the aggregate according to a preset time program.

Claim 18 (currently amended): The control system according to claim 8, ~~characterized in that~~ 32, wherein aggregate-specific software fuzzy controllers ~~(41)~~ can be installed on the industrial PC or industrial microcomputer, said software fuzzy controllers each comprising an aggregate-specific control base ~~(42)~~ of an inference machine ~~(43)~~ and a condition interface ~~(44)~~ associated with the inputs, as well as an action interface ~~(45)~~ associated with the outputs.

Claim 19 (currently amended): The control system according to claim 8, ~~characterized in that provision is made for~~ 32, further comprising a serial RS-232 interface ~~(14)~~ serving as one of the standardized communicative interfaces.

Claim 20 (currently amended): The control system according to claim 8, ~~characterized in that provision is made for~~ 32, further comprising a serial RS-485 interface ~~(15)~~ serving as one of the standardized communicative interfaces.

Claim 21 (currently amended): The control system according to claim 8, ~~characterized in that provision is made for 32,~~ further comprising a profi-bus interface ~~(16)~~ serving as one of the standardized communicative interfaces.

Claim 22 (currently amended): The control system according to claim 8, ~~characterized in that 32,~~ wherein the system bus ~~(18)~~ of the industrial PC or industrial microcomputer is provided with an interface for connecting extension pc motherboards preferably with additional inputs and outputs ~~(23, 24)~~.

Claim 23 (currently amended): The control system according to claim 9, ~~characterized in that~~ wherein the inputs and outputs ~~(19, 20, 23, 24)~~ are designed in the form of plug terminals located on the back wall and/or the top wall and/or the bottom wall and/or the side walls of the housing ~~(4)~~.

Claim 24 (currently amended): The control system according to claim 9, ~~characterized in that~~ wherein the control surface ~~(7)~~ has a protected foil keyboard and an LCD-display ~~(8)~~, whereby all functions of the control system can be called up in a menu-guided manner via the foil keyboard and are readable with their data on

the LCD-display ~~(8)~~ in different languages and/or unit systems in a manner that is reversible online.

Claim 25 (currently amended): The control system according to claim 9, ~~characterized in that~~ wherein the control surface ~~(7)~~ has light-emitting diodes ~~(9)~~ for monitoring and displaying the main functions and for failure and/or maintenance reports.

Claim 26 (currently amended): The control system according to claim 8, ~~characterized in that in addition to the inputs and outputs (19, 20, 23, 24), provision is made for 32, further~~ comprising additional free inputs and outputs.

Claim 27 (currently amended): The control system according to claim 26, ~~characterized in that~~ wherein the free outputs can be occupied via the control surface or the data interfaces with any signals present in the control system.

Claim 28 (currently amended): The control system according to claim 27, ~~characterized in that~~ wherein additional data profiles exist for occupying the free outputs, said additional data profiles being recallable and/or variable via the control surface or the data interfaces.

Claim 29 (currently amended): The control system according to claim 30, ~~characterized in that~~ wherein a test mode can be called up via the menu control, in conjunction with which test mode the values of the analog and/or digital inputs and outputs can be individually queried locally or via remote data transmission when the aggregate is in operation, and the conditions of the outputs, furthermore, can be preset in any desired way independently of the control logic when the aggregate is shut down.

Claim 30 (currently amended): An electronic control system for aggregates generating compressed air and vacuum, with programmable electronic circuits for controlling, regulating and monitoring the technical functions of such aggregates, in particular the functions of the compressed air generator or of the vacuum pump and of the associated drives, as well as of the treatment of the compressed air, ~~characterized in that~~ wherein the electronic control system is configured as a standardized control system for employment in a multitude of different aggregates for generating compressed air or vacuum, and has an industrial PC or industrial microcomputer monitored and controlled by an operating system ~~(11)~~ and comprising one or a plurality of microprocessors ~~(12)~~ and a central data memory ~~(13)~~



containing at least controlling and regulating software ~~(36)~~ and a multitude of aggregate-specific data profiles ~~(40)~~ in a recallable manner, said data profiles comprising the data belonging to the aggregates and their components with respect to the controlling and regulating algorithms and/or the controlling and/or the regulating parameters and/or the technical characteristics and limit values and/or the aggregate-specific occupancy of the inputs and outputs ~~(19, 20, 23, 24)~~.

Claim 31 (new): The control system according to claim 30, wherein the software in the central data memory comprises:

- (a) components for control and regulating logic;
- (b) components for activation of an operating surface (operating and observation software);
- (c) components for management of history memory (order processing);
- (d) components for communication via interfaces (communication applications);

said components accessing a common data base in which said data profiles are also stored.

Claim 32 (new): The control system according to claim 30 comprising:

(a) a plurality of digital and analog inputs and outputs for detecting a condition and for controlling the connected aggregate components, whose occupancy can be fixed via the controlling and regulated software;

(b) a control surface with plain text display; and

(c) at least one standardized data interface for communicatively connecting primary, secondary or subordinated systems.